Department of Electrical and Electronic Engineering
Shahjalal University of Science and Technology

Course Code: EEE485

Course Title: Cellular Mobile and Satellite Communication

Duration: 30mins

Total marks: 20

Q1. Define (i) Elevation angle (ii) Azimuth angle (iii) Nadir angle (iv) Apogee (v) Perigee. 10

Q2. What do you know about LEO and MEO? 10

Term Test
Course No: EEE 465
Course Title: Optoelectronics
Full Marks : 15 Time : 20 minutes

Answer all the questions

1.	(a)	The output spectrum of LASER is narrower than LED.....true or false.	1
	(b)	Direct band gap materials are used in optoelectronic industry. (T/F)	1
	(c)	Si is mostly used to produce optoelectronic devices. (T/F)	1
	(d)	With proper doping indirect to direct transition is possible. (T/F)	1
	(e)	Semiconductor laser is more powerful than Gas laser. (T/F)	1
2.	(a)	What is a degenerate semiconductor material?	3
	(b)	What is Fermi level energy? Draw the Fermi level for an intrinsic, n type and p type materials.	4
	(c)	Write few distinguishing characteristics of LCD display and LED display.	3

Shahjalal University of Science and Technology
Department of Electrical and Electronic Engineering
Course Code: EEE-491
Tutorial: 2 Marks: 20 Time: 25 minutes

1 Define: i) Mean heart rate ii) Recovery heart rate iii) Safety heart rate iv) [illegible] 8

2 Write short notes on: i) A-V block ii) Defibrillators 6

3 What are the differences between fixed rate pacemaker and triggered pacemaker? 4

4 Prove that $F \geq 2\dfrac{60 - \Delta t}{(\Delta t)^2}$ 8

ID: Batch:

1. Why does auxiliary power supply is not necessary for Phase sequence and voltage asymmetry relay? [1]
2. If Phase lack or wrong phase sequence how does intervention occur? Instant Intervention/ delay Intervention [1]
3. What do you mean by normally energized relay and normally de-energized relay? [1+1]
4. Write down the operating principle of current relay. [3]
5. Write down the function of NO,NC and INHIB terminal [1+1+1]
6. What are the two types of protection are provided by Maximum current three-phase relay? [1]
7. Why does current must be kept higher in Short circuit protection? [1]
8. What type of protection is provided by single-phase current relay? [1]
9. How does over current and under current produces in a transmission line? [1+1]
10. What do you mean by overload, under load and short-circuit protection? [1+1+1]
11. Write down the function of Hysteresis knob. [2]
12. What type of protection is provided by maximum and minimum three phase voltage relay? [1]
13. What do you mean by – i) Nominal Voltage ii) Maximum voltage threshold = 120% iii) Minimum voltage threshold= -50% [1+1+1]
14. Can you protect any electrical equipment from AC and DC current by using the same current relay that you used in lab? [1]
15. What do you mean by Asymmetry= 20% in Phase sequence relay? [1]
16. Write down the operating principle of CT and PT. [2+2]
17. What do you mean by balanced and unbalanced load? [1+1]
18. Write down the operating principle of detecting zero sequence current by using CT and Maximum Single phase relay? [3]
19. Write down the operating principle of detecting imbalance in current between wires by using a differential relay in a three-phase line. [3]